I. AMENDMENT

In the Claims:

PLEASE ENTER THE FOLLOWING AMENDMENT WITHOUT PREJUDICE OR DISCLAIMER. Applicants reserve the right to file a divisional or continuation application to the originally filed claims.

Claim 1 (Canceled)

2. (Previously Presented) The compound of claim 71, wherein the compound is isotopically enriched with three or more heavy atom isotopes.

3. (Previously Presented) The compound of claim 71, wherein the six-membered heterocyclic ring is substituted with one or more substituents.

4. (Original) The compound of claim 3, wherein the one or more substituents are alkyl, alkoxy or aryl groups.

Claims 5-8 (Canceled)

9. (Previously Presented) The compound of claim 71, wherein LG is N-hydroxysuccinimide.

10. (Previously Presented) The compound of claim 71, wherein the compound is a salt.

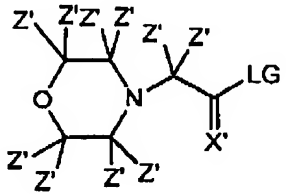
11. (Previously Presented) The compound of claim 71, wherein the compound is a mono-TFA salt, a mono-HCl salt, a bis-TFA salt or a bis-HCl salt.

12. (Previously Presented) The compound of claim 71, wherein each incorporated heavy atom isotope is present in at least 80 percent isotopic purity.

13. (Previously Presented) The compound of claim 71, wherein each incorporated heavy atom isotope is present in at least 93 percent isotopic purity.

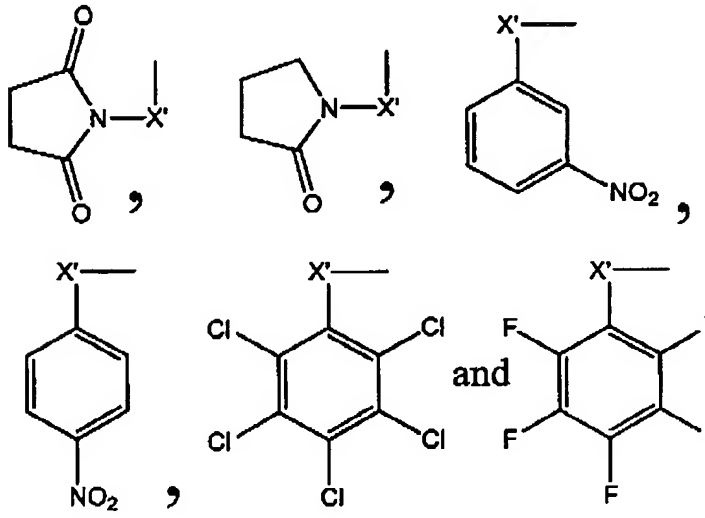
14. (Previously Presented) The compound of claim 71, wherein each incorporated heavy atom isotope is present in at least 96 percent isotopic purity.

15. (Previously Presented) An N-substituted morpholine acetic acid active ester compound of the formula:



or a salt thereof, wherein;

LG is the leaving group of an active ester selected from the group consisting of:



X′ is O or S;

each Z′ is independently hydrogen, deuterium, fluorine, chlorine, bromine, iodine, an amino acid side chain or a straight chain or branched C1-C6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each

independently comprise linked hydrogen, deuterium or fluorine atoms; and

wherein the N-substituted morpholine acetic acid active ester is isotopically enriched with one or more heavy atom isotopes.

16. (Original) The compound of claim 15, wherein the N-substituted morpholine acetic acid active ester is isotopically enriched with three or more heavy atom isotopes.

Claim 17 (Canceled)

18. (Original) The compound of claim 15, wherein LG is N-hydroxysuccinimide.

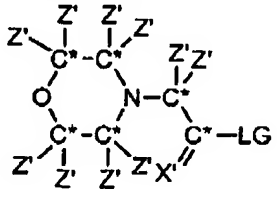
19. (Previously Presented) The compound of claim 15, wherein each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine or iodine.

20. (Previously Presented) The compound of claim 15, wherein each Z' is independently hydrogen or methyl.

21. (Previously Presented) The compound of claim 15, wherein X' is ^{16}O or ^{18}O.

22. (Original) The compound of claim 15, wherein the nitrogen atom of the morpholine ring is ^{14}N or ^{15}N.

23. (Previously Amended) The compound of claim 15, of the formula:



wherein;

each C* is independently ^{12}C or ^{13}C;

LG is the leaving group of an active ester as defined in claim 15;

X' is O or S; and

each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine, iodine, an amino acid side chain or a straight chain or branched C1-C6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen, deuterium or fluorine atoms.

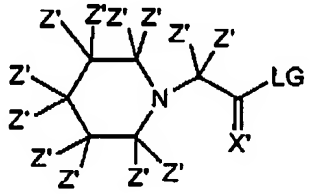
24. (Original) The compound of claim 15, wherein the compound is a mono-TFA salt or a mono-HCl salt.

25. (Original) The compound of claim 15, wherein each incorporated heavy atom isotope is present in at least 80 percent isotopic purity.

26. (Original) The compound of claim 15, wherein each incorporated heavy atom isotope is present in at least 93 percent or isotopic purity.

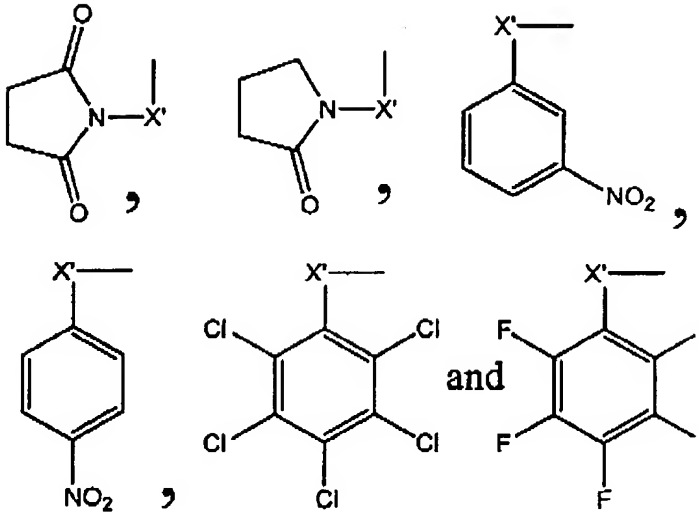
27. (Original) The compound of claim 15, wherein each incorporated heavy atom isotope is present in at least 96 percent or isotopic purity.

28. (Previously Presented) An N-substituted piperidine acetic acid active ester compound of the formula:



or a salt thereof, wherein;

LG is the leaving group of an active ester selected from the group consisting of:



X' is O or S;

each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine, iodine, an amino acid side chain or a straight chain or branched C1-C6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen, deuterium or fluorine atoms; and

wherein the N-substituted piperidine acetic acid active ester is isotopically enriched with one or more heavy atom isotopes.

29. (Original) The compound of claim 28, wherein the N-substituted piperidine acetic acid active ester is isotopically enriched with three or more heavy atom isotopes.

Claim 30 (Canceled)

31. (Original) The compound of claim 28, wherein LG is N-hydroxysuccinimide.

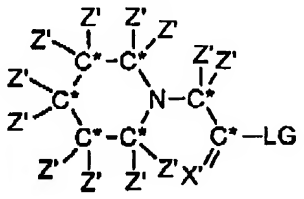
32. (Previously Presented) The compound of claim 28, wherein each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine or iodine.

33. (Previously Presented) The compound of claim 28, wherein each Z' is independently hydrogen or methyl.

34. (Previously Presented) The compound of claim 28, wherein X' is ^{16}O or ^{18}O.

35. (Original) The compound of claim 28, wherein the nitrogen atom of the piperidine ring is ^{14}N or ^{15}N.

36. (Previously Presented) The compound of claim 28, of the formula:



wherein;

each C* is independently ^{12}C or ^{13}C;

LG is the leaving group of an active ester as defined in claim 28;

X' is O or S; and

each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine, iodine, an amino acid side chain or a straight chain or branched C1-C6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen, deuterium or fluorine atoms.

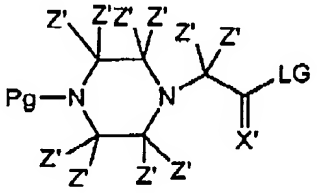
37. (Original) The compound of claim 28, wherein the compound is a mono-TFA salt or a mono-HCl salt.

38. (Original) The compound of claim 28, wherein each incorporated heavy atom isotope is present in at least 80 percent isotopic purity.

39. (Original) The compound of claim 28, wherein each incorporated heavy atom isotope is present in at least 93 percent or isotopic purity.

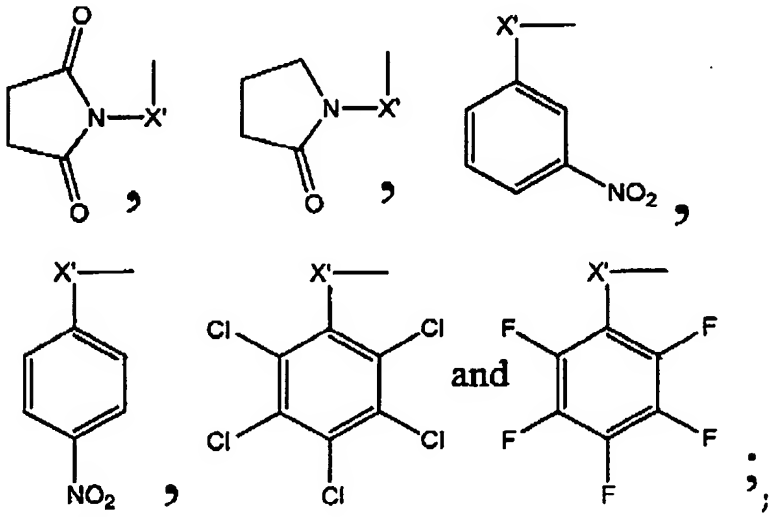
40. (Original) The compound of claim 28, wherein each incorporated heavy atom isotope is present in at least 96 percent or isotopic purity.

41. (Previously Presented) An N-substituted piperazine acetic acid active ester compound of the formula:



or a salt thereof, wherein;

LG is the leaving group of an active ester selected from the group consisting of:



X' is O or S;

Pg is an amine-protecting group;

each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine, iodine, an amino acid side chain or a straight chain or branched C1-C6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each

independently comprise linked hydrogen, deuterium or fluorine atoms; and

wherein the N-substituted piperazine acetic acid active ester is isotopically enriched with one or more heavy atom isotopes.

42. (Previously Presented) The compound of claim 41, wherein the N-substituted piperazine acetic acid active ester is isotopically enriched with three or more heavy atom isotopes.

Claim 43 (Canceled)

44. (Original) The compound of claim 41, wherein LG is N-hydroxysuccinimide.

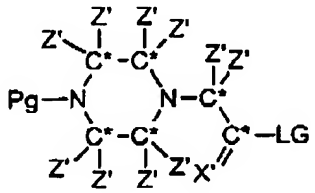
45. (Previously Presented) The compound of claim 41, wherein each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine or iodine.

46. (Previously Presented) The compound of claim 41, wherein each Z' is independently hydrogen or methyl.

47. (Previously Presented) The compound of claim 41, wherein X' is ^{16}O or ^{18}O.

48. (Original) The compound of claim 41, wherein each nitrogen atom of the piperazine ring is ^{14}N or ^{15}N.

49. (Previously Presented) The compound of claim 41, of the formula:



wherein,

each C* is independently ^{12}C or ^{13}C;

LG is the leaving group of an active ester as defined in claim 41;

X' is O or S;

Pg is an amine protecting group; and

each Z' is independently hydrogen, deuterium, fluorine, chlorine, bromine, iodine, an amino acid side chain or a straight chain or branched C1-C6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen, deuterium or fluorine atoms.

50. (Previously Presented) The compound of claim 41, wherein the compound is a mono-TFA salt, a mono-HCl salt, a bis-TFA salt or a bis-HCl salt.

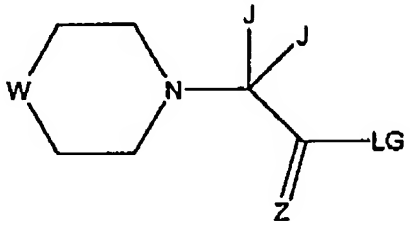
51. (Original) The compound of claim 41, wherein each incorporated heavy atom isotope is present in at least 80 percent isotopic purity.

52. (Original) The compound of claim 41, wherein each incorporated heavy atom isotope is present in at least 93 percent or isotopic purity.

53. (Original) The compound of claim 41, wherein each incorporated heavy atom isotope is present in at least 96 percent or isotopic purity.

Claims 54-70 (Canceled)

71. (Previously Presented) A compound of formula:



or a salt thereof, wherein,

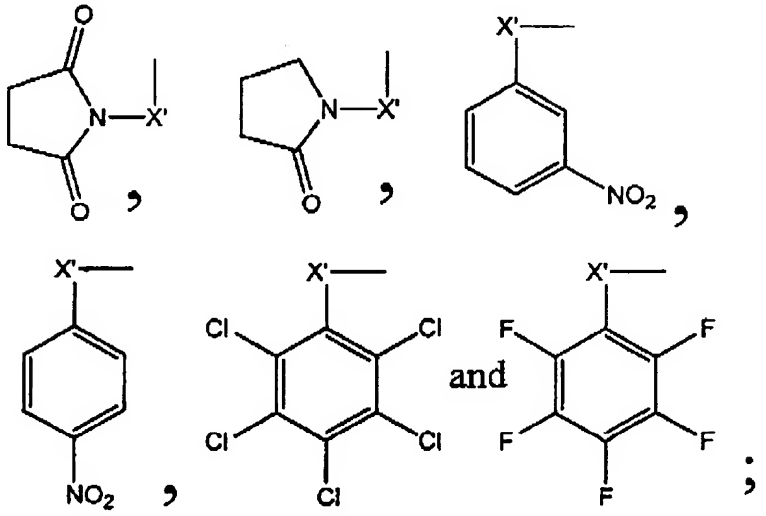
each carbon of the heterocyclic ring has the formula $C(J)_2$;

W is NH, N-R^1, N-R^2, P-R^1, P-R^2, O, C or S;

each J is the same or different and is H, deuterium (D), R^1, OR^1, SR^1, NHR^1, $N(R^1)_2$, fluorine, chlorine, bromine or iodine;

Z is O, S, NH or NR^1; and

LG is an alcohol or thiol leaving group selected from the group consisting of:



wherein,

X' is O or S;

R^1 is the same or different and is an alkyl group comprising one to eight carbon atoms which may optionally contain a heteroatom or a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups independently comprise linked hydrogen, deuterium and/or fluorine atoms; and

R^2 is an amino alkyl, hydroxy alkyl, thio alkyl group or a cleavable linker that cleavably links the reagent to a solid support wherein the amino alkyl, hydroxy alkyl or thio alkyl group comprises one to eight carbon atoms, which may optionally contain a heteroatom or a substituted or unsubstituted aryl group, and wherein the carbon atoms of the alkyl and aryl groups independently comprise linked hydrogen, deuterium and/or fluorine atoms; and

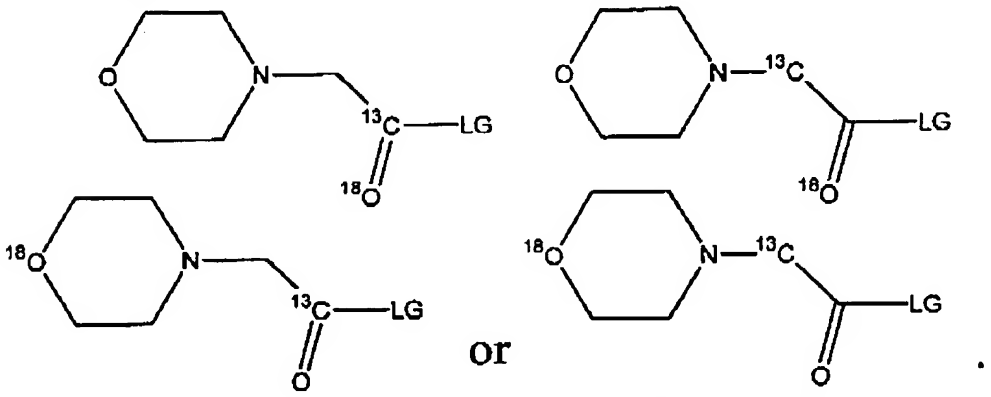
wherein the compound is isotopically enriched with one or more heavy atom isotopes.

72. (Previously Presented, Withdrawn) A method comprising:

a) reacting an analyte with the compound of claim 71 to thereby produce a labeled analyte; and

b) mixing the labeled analyte with one or more differentially labeled analytes.

73. (Previously Presented) The compound of claim 71 of the formula:



74. (Previously Presented) The compound of claim 71 of the formula: